UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering

S. H. McCrory, Chief.

M O N T H L Y N E W S L E T T E R

Vol. 1. February, 1932 No. 8

During the week beginning February 15, the National Advisory and Legislative Committee on Land Use, created as a result of the land utilization meeting held in Chicago last November, met in Washington. This committee set up 10 sub-committees to deal with the various problems involved in the establishment of national land utilization policies. The sub-committees are as follows:

(1) Sub-marginal areas
(2) Adjustment and farm reorganization on better farming areas
(3) Land inventories and classification
(4) Agricultural outlook
(5) Forest parks, recreational and wild life preservation areas
(6) Rural credits and land values
(7) Adjustment and reorganization in taxation relative to land use
(8) Oil, gas and other mineral rights
(9) Public range policies
(10) Reclamation, irrigation and drainage

A Committee on Committees was also created. The personnel of the committees has not yet been fully decided upon. It is understood that the activities will be pushed and that rather frequent meetings will be held with the object of coordinating the work of the sub-committees and accomplishing definite results in the shortest possible time.

A meeting of the Professional workers of the Department in Washington was held on Saturday afternoon, February 20. Several hundred were present. Another meeting will be held on February 27. These meetings are in line with the general movement to consolidate the professional workers of the Department as a means of benefitting the work as a whole as well as the status of the employees themselves.

The 1933 Agricultural appropriation bill has been reported to the Senate. In considering the bill, the Senate appropriations committee struck out the much-discussed sections 2 and 3 setting up

certain limitations with reference to promotions and appointments. This, however, does not mean that these sections have been discarded but merely that the Senate committee is not satisfied with the provisions in the form passed by the House. That part of the bill relating to this Bureau has not been changed since it was passed by the House.

L. A. Jones and C. E. Ramser attended a meeting of the cooperative agencies of Wisconsin at Madison on February 6, where plans for the experimental work on the La Crosse soil erosion station were outlined. Mr. Jones then proceeded to St. Paul and Iowa City where he conferred with D. G. Miller and D. L. Yarnell relative to their work. Mr. Jones attended the National Drainage and Conservation Conference at Louisville, Ky., on February 17 and 18, and delivered a paper on "The present needs of drainage."

D. G. Miller is preparing a final report on the concrete-alkali investigations which he has had under way for the past several years.

W. D. Ellison made a trip to Cleveland and Detroit where he inspected machinery adaptable for use in ditch maintenance work. From Detroit he went to Bowling Green, Ohio, where he assisted Mr. Hopkins in completing a topographic map of the La Crosse soil erosion farm and went over the results of the run-off investigations made in that locality.

G. A. Mitchell visited Washington recently to confer relative to the work of the coming season.

J. G. Sutton spent about two weeks in Washington in February in connection with his manuscript for a bulletin on the cost of drainage pumping plants in the Upper Mississippi Valley. While here he appeared before a committee of Congress in connection with hearings on the bill providing for the payment of damages to landowners in the drainage districts along the Upper Mississippi River, caused by seepage or otherwise as a result of the proposed 9-foot channel for navigation.

The following news items were submitted by C.E. Ramser:

H. S. Riesbol reports oats yields of 22.8, 25.6 and 21.0 bushels per acre on three terraces with the following uniform grades; level with one end open, 2 inches and 6 inches per 100 feet, respectively. It is believed that the low yields obtained on the level terrace and the terrace with 6 inches fall were due to partial drowning of the crop in the level terrace channel and to washing out of part of the crop in the graded terrace channel with 6 inches fall per 100 feet. Considerable wind blown soil collects in the terrace channels. On one badly gullied slope the gullies above the terraces were partially filled with wind blown soil and the gullies on the unterraced part of the slope caught large quantities of soil. The first heavy rain washed out this collection of wind blown material in the gullies on the unterraced land but the material on the terraced land was retained above the terraces from which it is seen that terraces serve effectively to control wind erosion as well as water erosion.

H. O. Hill reports an annual rainfall of only 26 inches at Temple, Texas for the year 1931. The normal rainfall at Temple for a 17-year period is 36.35 inches which shows a deficiency of 10.35 inches for the year 1931. The only rain of any importance during the year occurred on April 19 and amounted to 2.21 inches which fell in about 4½ hours. This rain was preceded by nearly a month of no rainfall and the percentages of rainfall that ran off were comparatively small, varying from 6 per cent for a terraced area planted to oats to 40 per cent for a terraced area planted to corn. The soil losses on these areas were 48 pounds and 1,325 pounds per acre respectively.

R. R. Drake has completed a survey of 240 acres of the Texas Agricultural Experiment Station at Spur, and returned to Hays, Kansas on February 12 where he will prepare the map.

In contrast to the Temple project A. T. Holman reports an annual rainfall of 44.5 inches for the year 1931 which is 8.5 inches in excess of the normal rainfall for the Bethany station, the normal rainfall being 36 inches. Of this rainfall 33.3 inches occurred during the last 6 months of the year. During the months of July, August and September immediately following the comparatively dry period the percentage of water that ran off during storms from the terraces was only 31.7 per cent as compared with 65.3 per cent for the months of October, November and December. The average soil losses from all terraces planted to corn for the 13 largest rains amounted to about 2.3 tons per acre as compared with about 80 tons per acre on the Bureau of Chemistry and Soils' corn plots.

A system of small terraces were built on the Tyler project with a closer spacing and about one half the height and width of the ordinary Mangum terraces built on the Tyler farm with a view to determining the feasibility of using such terraces and thereby reducing the cost of terrace construction. Mr. Baird reports that observations of this field after several heavy rains indicated beyond doubt that these small terraces are not satisfactory. Breaks occurred in practically all of the terraces and serious erosion resulted.

P. C. McGrew has been experiencing considerable difficulty in keeping the terrace channels, outlet ditches and silt boxes free from snow during the winter months. An unusually large amount of snow has occurred this winter and it appears that unless the terrace channels are kept open melting snow produces run-off before the snow in the terrace channel has melted sufficiently to provide for the removal of the run-off water. Such a condition existed in January and caused the overtopping of the terraces. Mr. McGrew plans to keep a number of the terrace channels open after each snow fall so that they will be in condition for removing run-off from melting snow due to Chinook winds. The practicability of this method remains to be determined owing to the cost of cleaning channels.

W.W. McLaughlin, Harry F. Blaney, Colin A. Taylor, and J. H. McCormick held a conference January 25, with Dr. C. S. Scofield of the Citrus Experiment Station at Riverside, California, to formulate the final plans for cooperative irrigation investigations between the

Bureau of Plant Industry and this Bureau, to be conducted at Bard, Calif. by Mr. McCormick. The study involves a determination of the amount of water applied to various crops in the rotation experiments of the Division of Western Irrigation Agriculture of the Bureau of Plant Industry, and the consumptive use of a few typical crops. Some discussion was also had regarding a similar study to be conducted at Scottsbluff, Nebraska, by Leslie Bowen.

Mr. McLaughlin left Berkeley February 1 for a conference at Boise, Idaho, with representatives of the University of Idaho and of the State Department of Reclamation, regarding future cooperative work in that State under the direction of J. C. Marr. Tentative plans were considered for the conduct of our cooperative alkali reclamation study during the present season. Mr. McLaughlin then proceeded to Utah to discuss with Director Cardon of the Utah Agricultural Experiment Station and with Mr. Winsor, various phases of the cooperative work and to outline tentative plans for the work of the present season. While in Utah Mr. McLaughlin spoke briefly at a luncheon at the Salt Lake Chamber of Commerce on the work of the Bureau. He also discussed the subject of Conservation and Utilization of Irrigation Water, before the National Water Users Conference at Salt Lake City, sponsored by the National Federated Farm Bureau.

M. R. Lewis prepared tentative specifications for the weed seed screening plant and pump for the Umatilla Experiment Farm, Hermiston, Oregon, operated cooperatively by the Bureau of Plant Industry, Division of Western Irrigation Agriculture, and the Oregon Experiment Station. Mr. Lewis made a trip to Berkeley January 18 to 25, and on his return attended the winter meeting of the Pacific Coast Section, American Society of Agricultural Engineers, at Sacramento. Mr. Lewis is giving a series of five radio talks over K O A C on methods of applying irrigation water.

Permanent headquarters of Dean W. Bloodgood have been moved from State College, New Mexico, to Pomona, Calif., where he arrived Jan. 14. His headquarters are now Room 4, Post Office Building, Pomona. He will work with Messrs. Blaney and Taylor in our various southern California projects.

A. T. Mitchelson addressed the Annual Conference of Farm Advisors of California at the University of California, Berkeley, January 6, on Water Spreading.

At the request of the State Reclamation Commission of Oregon, Wells A. Hutchins has made rehabilitation surveys of Medford and Talent Irrigation Districts, in Rogue River Valley, both of which defaulted in payment of bond obligations last July.

O. A. Faris accompanied members of the Board of Water Engineers on a field trip to Eagle Pass, Texas, and vicinity January 3 to 6, for the purpose of meeting F. C. Scobey and engineers of the Maverick County Water Improvement District No. 1, to inspect the main canal of the system with reference to its capacity. Much of the length of the canal is lined with gunite as shot - without brush or trowel smoothing. At the upper end a reach some 6,000 feet long will have the sides lined with planed redwood planks, separated about 3/8 inch so that pressures on both sides of the planking will quickly equalize. The mud slimes are

expected to improve the rough gunite surface but will reduce the capacity of the section lined with planks. Capacity tests are contemplated soon after this canal is put in operation, with later tests to determine the progressive effect of the silted waters. There are no known data on the value of n in very large canal sections lined with rough gunite.

From January 11 to 19, Mr. Faris was on a field trip to the Lower Rio Grande Valley for the purpose of conducting seepage tests on reaches of concrete-lined canals and a reach of a resaca or an old river channel, used for conveyance and storage of water.

F. J. Fricke, under the direction of O. A. Faris, is preparing rainfall data of the Brazos River watershed, Texas. Mr. Fricke is also calculating the results of Mr. Faris' study of canal leakage losses in concrete and gunite lined irrigation canals of the Lower Rio Grande valley. Current silt data of the various Texas silt stations are also being calculated and recorded.

Leslie Bowen reports an interesting experiment in determining crop yields by two entirely different methods, the results of which were found to check quite closely. (1) Each individual farmer was consulted and his total acreage and yield obtained; (2) throughout the various districts samples were taken, a circular hoop of one foot area being used, each sample consisting of three square feet of area - where grain was good, poor, and average. The results obtained from the two methods checked quite closely.

J. C. Marr submitted a fourth progress report on Alkali Land Reclamation in Idaho, prepared by himself and members of the departments of Chemistry, Agricultural Engineering, Forestry, and Agronomy, of the Idaho Agricultural Experiment Station.

R. L. Parshall made a calibration set-up at the hydraulic laboratory to investigate pipe orifice meters, and prepared a short report covering this study. It was determined that this method of measuring water by means of attaching this special orifice at the end of a pipe, principally a discharge pipe from a pump, proves to be accurate, of simple operation and extremely convenient. Recently Mr. Parshall and Mr. Rohwer inspected one of these pipe orifices in operation on a pump discharge from a well near Greeley, Colorado. Later Mr. Rohwer checked the discharge from this orifice by means of a Parshall flume, and a very good agreement was found. Mr. Parshall states it is not unlikely that they will have an opportunity to use some of the orifice plates which were calibrated at the laboratory, in connection with pump studies in Colorado.

R. B. Gray returned to Washington February 6, from an extended field trip to the Middle West and South. At the farm machinery exposition at Kansas City, January 20 and 21, some ten of the leading manufacturers had large displays showing the latest development in farm machinery equipment. He conferred in turn with Professor Fenton at Manhattan, Kans., Prof. Wooley of Columbia, Mo. and Prof. Carter of Fayetteville, Ark., on farm machinery equipment and problems. At Jeanerette, La., he

conferred with E. D. Gordon on the proposed alterations of the forage drier equipment on the New Iberia Livestock farm. At Albany, Georgia, he discussed with E. M. Dieffenbach various questions involved in the cooperative project of pecan spraying. At Auburn he conferred with J. W. Randolph and Prof. Nichols and staff on various phases of the cotton project and soil dynamics.

An exhibit of corn borer control machinery, in charge of I. F. Reed, was shown at the Ohio State University during Farmers' Week, February 1 to 5. At this meeting R. M. Merrill delivered a paper entitled "The Present Status of Machinery in Corn Borer Control."

Frank Irons of the South Norwalk office spent February 16 in Toledo conferring on corn borer machinery problems.

G. E. Ryerson, of the Toledo corn borer force, left Toledo February 17, to take up his new assignment with C. E. Ramser at Guthrie, Okla., on the Soil Erosion project.

J. W. Randolph was elected Secretary of the Southern Section of the American Society of Agricultural Engineers.

D. A. Isler arrived in Phoenix, Ariz., February 10, to carry out a series of experiments in plowing under rank growths of Pima cotton stalks in the Salt River Valley as a method of controlling the bollworm. He reports that 85 acres of land are being utilized at Presidio, Texas, in a series of field experiments in connection with the control of the pink bollworm by cultural methods.

C. K. Shedd conferred with machinery manufacturers and implement concerns in Nebraska on matters relating to certain equipment to be used on a number of phases of the corn production project.

On January 7, Chas. A. Bennett, visited Tunica, Miss., to inspect one of the Government cotton driers in that locality.

Miss Dorothy Nickerson, Color Technologist, Division of Cotton Marketing, Washington, D.C., was stationed at Stoneville for the period from January 19 to February 8, inclusive, for the purpose of superintending and conducting color tests on 1931-32 samples of cotton, in which tests the colorimeter is used.

George Gaus of the Bureau of Agricultural Economics, Washington, D. C., has been at Stoneville since January 22, working on projects, such as the fractionation of trash in cotton, the use of special instruments to read moisture contents direct from cotton bales, etc.

On February 2, Mr. Bennett attended the Alabama Ginners Association, Montgomery, Ala., where he presented a paper entitled "Drying and Ginning Cotton."

A total of approximately 8,000 tests on cotton ginning have been reported by Mr. Victor Stedronsky at the conclusion of the principal tests of the season.

M. A. R. Kelley is still at Brookhill Farm, Genesee Depot, Wisc., completing the study of the relation of stable air conditions to milk production. He hopes that one or more short periods of cold weather will occur before the end of the season.

A. D. Edgar is continuing the experiment on potato storage at Presque Isle, Maine. Cooking tests of samples of potatoes from the experiment house were made by the University of Maine. These tests showed considerable improvement in cooking quality through temperature control in the storage bins. Mr. Edgar has been cooperating with owners of both farm and track-side storage houses to improve moisture conditions in the houses.

J. R. McCalmont has returned to Washington after completing the field work on the study of pressures and beam loading in an experimental corn crib at Toledo, Ohio.

A. H. Senner has completed the revision of his manuscript for a bulletin on greenhouse heating.

W. V. Hukill left Wenatchee, Washington, on February 3, with a shipment of five cars of apples bound for New York. The purpose of the trip was to test the effectiveness of car heaters for perishable products. The lowest outside temperature encountered on the trip was 12° below zero. The shipment arrived in New York February 11.

Mr. Hukill prepared a paper on "Refrigerator car surface temperatures" for the American Society of Refrigerating Engineers which was presented at a meeting of the Society in Cleveland, Ohio.